

apophyses may be lost by reduction. I have never observed *Botryodea* with more than five apophyses.

The *Central Capsule* of the *Botryodea* is not yet sufficiently known, no living species having been observed. In some preparations from specimens in the Challenger collections, stained by Dr. John Murray with carmine immediately after the dredging operation, single *Botryodea* are to be found in which the central capsule is deeply coloured. In *Botryopera quinqueloba* (Pl. 96, fig. 2) it filled up the greater part of the cephalis and seemed to be divided into some small lobes. In *Lithobotrys sphærothorax* (Pl. 96, fig. 15) it was divided into four lobes, three of which filled the trilobed cephalis, the fourth large lobe occupying a great part of the spherical thorax. Details of their structure, unfortunately, were not recognisable. There can, however, be no doubt that they are the same as in all other *NASSELLARIA*.

*Synopsis of the Families of Botryodea.*

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| 1. Shell monothalamous, consisting of the lobate cephalis only, . . . . .                | 1. CANNOBOTRYIDA. |
| 2. Shell dithalamous, composed of a lobate cephalis and a simple thorax, . . . . .       | 2. LITHOBOTRYIDA. |
| 3. Shell trithalamous, composed of a lobate cephalis, a thorax and an abdomen, . . . . . | 3. PYLOBOTRYIDA.  |

Family LVI. CANNOBOTRYIDA, Haeckel (*sensu emendato*).

*Cannobotryida*, Haeckel, 1881, Prodrömus, p. 440.

*Definition*.—*Botryodea monothalamia*, the shell of which represents a lobate cephalis, without thorax and abdomen.

The family *Cannobotryida* (retained here with a stricter definition than originally was given in my Prodrömus) comprises those *Botryodea*, in which the whole shell is represented by the cephalis alone, without thorax and abdomen. Since the two latter joints, found in the two following families, are secondary productions, the *Cannobotryida* must be regarded as the ancestral forms of all *Botryodea*, in an ontogenetic as well as in a phylogenetic sense.

Two species only of this family have been hitherto known, incompletely described by Ehrenberg as *Lithobotrys triloba* and *Lithobotrys quadriloba*. A great number of similar forms are to be found in the Radiolarian ooze of the Central Pacific, but they are very minute, and difficult to examine. We can describe here only twelve species of these, which we arrange in two genera; *Botryopera* without porous tubes, and *Cannobotrys* bearing a variable number of porous cylindrical tubes (one to five). The number of lobes of the cephalis is also variable in each genus (one to five or more). If in the future these minute and interesting shells should be better examined, it would